

For each question, you need to find the answer and show your work. Each problem is worth 3 points: one for the correct answer and two for showing your work. For some problems, you may just need to write out how you know you have the correct answer.

Solve problems 1-6 using a method of your choice. If choose to graph any, use a separate piece of graph paper.

1.
$$\begin{cases} y = x - 1 \\ x + y = 5 \end{cases}$$

2.
$$\begin{cases} x + y = 4 \\ y = 2x - 8 \end{cases}$$

3.
$$\begin{cases} x + 1 = y \\ y = 2x \end{cases}$$

4.
$$\begin{cases} -2y + 12 = 7x \\ 5x + 3y = 18 \end{cases}$$

5.
$$\begin{cases} 3x - y = -10 \\ -5x - y = 14 \end{cases}$$

6.
$$\begin{cases} 3x - y = 17 \\ y + 2x = 8 \end{cases}$$

Use the following information for questions 7- 9: Matt Mitarnowski and Fuzzy Jeff are rock climbing on the same hill. Matt is at a height of 200 ft and begins descending the hill at a rate of 12 ft per minute. Jeff is at a height of 120 ft and begins ascending at a rate of 4 ft per minute.

7. Let H be the height above ground level for each climber and m be the number of minutes each is climbing. Write a system of equations to represent the height for each climber after m minutes.

8. After how many minutes will the two climbers cross each other?

9. After how many total minutes of climbing will Jeff reach the 200 ft level?

Open-Ended Question: Write your answer on separate sheet of paper. Make sure as you answer the open-ended question that you show your work AND explain how you know you are doing the correct work. YOU MUST EXPLAIN WHAT YOU ARE DOING!!!

A new company manufactures toys at a cost of \$2.50 per item. In addition, their set-up costs were \$1,925. They can sell each toy they produce at \$8.00.

A. If y is the total cost of production for x items, write an equation to represent their costs of production.

B. If the equation were graphed, what would the slope of the line represent?

C. If y is their income from sales and x is the number of items they sell, write an equation to represent their outcome.